Orange County Sanitation District
Source Control Division

Pre-Permit Inspection Report
(PPIR)

Permit Number:	2-1-297	Prepared by:	Walker, Thomas
Company Name:	CUSTOM ENAMELERS INC.	Date Inspected:	04/17/13
Sewer Address:	18340 MT. BALDY CIR. FOUNTAIN VALLEY 92708	Contact:	DARYL FOLMER OWNER

Description of Facility Operations

CUSTOM ENAMELERS INC. (Custom Enamelers) performs surface finishing on aluminum, cold-rolled steel, and galvanized steel parts. This facility is a medium volume job shop that conducts powdercoat, water-based, and solvent-based painting on customer-supplied parts and components for aerospace, automotive, commercial/industrial, computer, electronics, and military/defense applications. Other service operations include silk-screen printing.

The preparation of the aluminum and steel parts typically begins on the conveyorized wet process line which consists of a single iron phosphate tank to simultaneously clean and produce the phosphate surface conversion necessary for paint adhesion. This is followed by three counterflow rinses and a drying oven. Depending on the size, quantity, or paint specification, the parts either continue on the conveyorized line for powdercoat application or are directed to one of the batch paint booths. Following paint application, the parts proceed to one of the drying ovens for curing. As specified, the parts may undergo an additional screen printing operation. The completed parts receive a final inspection before packaging and shipping.

The effluent discharge at Custom Enamelers is generated by iron phosphate rinse wastestream. The iron phosphate solution is wastehauled approximately once annually. A very small quantity of water is generated on the washpad behind the building, where stripped hooks are rinsed. Hooks are stripped in a heated 55-gallon drum which is not discharged. Also, due to concerns voiced during the previous permit renewal inspection, Custom Enamelers sealed the floor drain in the restroom, and plumbed compressor condensate to the clarifier. RO reject is plumbed downstream of the sample point. The operations are housed in one building.

Operation(s) that do not generate wastewater include masking, hole plugging, glass-bead & sand blasting, and silk-screen printing.

Waste/Wastewater generating operation(s) include caustic stripping, iron phosphate conversion, spray rinsing, and stream-cleaning.

Description of Waste/Wastewater Controls

Waste/Wastewater Controls Using Dragout Reduction

One of the most critical components for effective waste/wastewater control is minimizing dragouts. Reducing dragout will extend bath life, minimize and help stabilize the loading to the pretreatment system, and reduce chemical costs for replenishment and treatment.

Process baths at Custom Enamelers are heated which helps reduce solution dragout. Because the viscosity and surface tension of a solution is typically lower when the temperature is raised, heated solution drains off the parts more quickly, thereby reducing the amount of dragout. In addition, the evaporation from a heated tank makes room allowing replenishment from a static dragout tank. At Custom Enamelers, the iron phosphate and alkaline stripper process tanks are heated.

Custom Enamelers has replumbed the three spray rinses following iron phosphate into a counterflow arrangement, with wastewater discharged only from the third (cleanest) rinse. The initial spray rinse tank has a bleed-back connection to the process tank, from which a float-controlled switch replenishes evaporative losses with DI water. Similarly, DI water from the final rinse replenishes evaporative and dragout losses from the first and second rinses.

Spray rinsing techniques are used at Custom Enamelers to aid in the removal of process solution from the workpieces.

Custom Enamelers uses spray rinses instead of immersion rinsing. Because a spray rinse is used in place of the initial running rinse, most dragout on the workpiece is removed while generating less wastewater.

An automated process line utilizing a conveyorized hoist is used to facilitate the drainage of dragout. Hoists and drip bars allow operators to hang workpieces so the process solution drains back into the process tanks. Such devices reduce the strain on the employees as they move the workpieces between tanks. Reducing the strain or effort improves the chances that the employees will take the extra time to allow sufficient draining.

Custom Enamelers utilizes strategic positioning of each workpiece on the rack to reduce the dragout. Because dragout is trapped in grooves or cavities present in or on workpieces as they are processed through the solution, consideration is taken as to how the pieces are positioned. This facilitates drainage of the solution in a consolidated manner while minimizing the amount trapped or dropped on to other pieces.

Drain boards or contiguous tanks are used to eliminate the space between tanks. As parts are moved from tank to tank, solution drips off the parts. The drain board captures the drops and returns the solution to the appropriate bath, while preventing spillage to the floor. With contiguous tanks, the solution drains directly back into the tank.

Waste/Wastewater Controls Waste Management of Spent Solutions

Spent solutions can be a major source of variability that affects compliance because of the heavy pollutant loadings that can potentially impact the performance of the treatment system. Many methods are available to efficiently control and treat spent solutions. These include bath maintenance, evaporation of the plating bath solution, reclamation of chemicals by the supplier, recovering of metals and metal salts, reusing baths as pH adjusters, treating the spent solutions with a dedicated batch system, off-site disposal, and metering the spent solutions into the continuous pretreatment system.

The spent iron phosphate solution is wastehauled offsite approximately once annually. Offsite disposal eliminates the need to treat and sewer the material.

Waste/Wastewater Controls Using Pretreatment System

Adequate design and reliable operation of a pretreatment system is critical for maintaining compliance. Within the pretreatment system, good controls will eliminate variabilities affecting the performance of the pretreatment system.

Although the operations at Custom Enamelers generate categorical wastestreams, consistent compliance is achieved by minimizing contamination of the wastewater discharged, and wastehauling spent solution.

Custom Enamelers utilizes a below-ground clarifier for solids settling. The clarifier, however, does not have a conical bottom to facilitate solids withdrawal and therefore should not be considered a pretreatment element. Problems can potentially occur when there is sludge accumulation in the clarifier. Since installing RO/DI water and re-plumbing the process piping, Custom Enamelers reports that solids accumulation in the clarifier has drastically decreased.

Waste/Wastewater Controls Through Environmental Management Practices

Management commitment to achieve environmental compliance is a principal component for effective waste/wastewater control.

One way management can demonstrate its commitment to regulatory compliance is through a written company policy. This policy can be used as the basis for the company's routine business practices pertaining to environmental compliance. However, Custom Enamelers does not have a written company policy regarding regulatory or environmental compliance.

Commitment to environmental compliance can also be demonstrated by conducting routine monitoring beyond the minimum required frequency. Additional sampling and analysis of the wastewater discharge improves compliance by providing an indication of pretreatment performance, thus helping to identify and resolve problems quickly. Currently, Custom Enamelers does not conduct additional monitoring of the wastewater discharge to diagnose and avert potential non-compliance problems.

Maintaining logs and records of maintenance activities, control parameters, and waste treatment operations is an important management practice that can help a company's compliance by providing additional information to improve pretreatment performance and/or help diagnose problems that arise. However, Custom Enamelers does not maintain logs and records related to regulatory/environmental compliance. Complete and up-to-date records of batch treatment activities, continuous pretreatment parameters, instrument calibration dates, and process bath maintenance provide an in-depth understanding of daily operations and ensure needed maintenance is not overlooked.

The permittee has an updated slug control plan or equivalent on site.

Slug Control Plan Notification procedure and information is posted at permittee location.

Recommendations for Improvement

Waste/Wastewater Controls Through Environmental Management Practices

- Consider adopting a written company policy on regulatory compliance which can serve as a guiding principle for routine business practices pertaining to environmental compliance.
- Consider conducting additional self-monitoring beyond the minimum required frequency. The District encourages voluntary self-monitoring as a means to diagnose and avert potential non-compliance problems. Submitting additional self-monitoring data to the District supplements the official compliance record, and may be useful in establishing compliance and/or demonstrating the long-term effectiveness

of a company's wastewater management program. The Wastewater Discharge Permit describes the techniques for collecting and analyzing valid self-monitoring samples. The permit engineer may be contacted for details on how to submit additional self-monitoring data.

- Logs and records related to regulatory/environmental compliance help create a clear understanding of the daily operations and supply valuable information for diagnostics when problems arise. Consider expanding the logs and/or records to include: batch treatment operations, continuous or hourly effluent pH, daily water meter readings, instrument calibration dates, monitoring results, pretreatment control parameters, process bath/rinse make-ups or dumps, and treatment chemical levels. Complete and up-to-date records of maintenance activities, operating parameters, and pretreatment operations provide useful information for improving pretreatment system performance, and ensure needed maintenance is not overlooked.

Sources of Waste/Wastewater and Destination

			Pollutants									Rinse Strategy								Group Destination													
Ctrl #	Tank ID	Tank Name	Process	Hexavalent Chromium	Cyanide	General Heavy Metals	Electroless Copper	Electroless Nickel	Conventional Pollutant	Other	None	Running	Counter Current	Spray	Static	Recycle	Controller	None	Other	Cr f/b HM CTS	CN f/b HM CTS	CTS- Chrome Reduction	CTS- Cyanide Destruction	CTS - HM Precipitation	Batch Treatment	Wastehauled Offsite	Discharged to SP	Replenish	Return to Process Tank	pH Adjust Only	I.X.System	Electrowinning	Other	Bled to CTS
1		iron phosphate conversion	✓			✓												✓								✓								
2		spray rinse 1				✓								✓		✓												✓						
3		spray rinse 2				✓								✓		✓												✓						
4		spray rinse 3	✓			✓								✓													✓	✓						
5		wash pad	✓			✓												✓									✓							
6		caustic stripper barrel	✓															✓										✓						

Waste Stream Destination Concern List

Pollutant	Tank ID	Tank Name	Group Destination	Comments
General Heavy Metals		spray rinse 3	Discharged to SP	overflow to sewer, bleed to #2 also.
General Heavy Metals		wash pad	Discharged to SP	open drain, cover no longer present.

Pretreatment Unit Processes

The following pretreatment unit processes are in place at this facility:

Continuous	Batch
☐ Continuous Chromium Reduction	☐ Multi-Purpose Batch Tank 1
☐ Contin.Cyanide Destruct 1Stage	☐ Multi-Purpose Batch Tank 2
☐ Contin.Cyanide Destruct 2Stage	☐ Multi-Purpose Batch Tank 3
☐ Equalization tank	☐ Batch Chrome Reduction
☐ Contin. Chemical Precipitation	☐ Batch Cyanide Destruct 1Stage
☐ Effluent pH Adjustment	☐ Batch Cyanide Destruct 2Stage
☐ Continuous Coag/Floc	☐ Batch Chemical Precipitation
☐ pH Adjust Tank-No Heavy Metals	☐ Batch Coagulation/Flocculation
☐ Clarification neop	☐ Plate & Frame Filter Press
☐ Sludge Thickening Tank	☐ Batch Chelate Breaking Tank
☒ Clarification eop	☐ Batch Clarification
☐ Continuous O/W Sep	☐ Sludge Thickening Tank
☐ Polishing Filter	☐ Polishing Filter
☐ Plate & Frame Filter Press	☐ Batch O/W Sep
☐ Other Pressure Filtration Device	☐ Electrowinning/Plateout
☐ Ion Exchange	☐ Effluent pH Adjustment
☐ Anion Exchange	☐ Anion Exchange
☐ Cation Exchange	☐ Cation Exchange
☐ Mixed-Bed Ion Exchange	☐ Mixed-Bed Ion Exchnage
☐ Cross Flow Filter (Memtek)	☐ Carbon Filtration
☐ Sorption Filter (Lancy)	☐ Holding Tank
☐ Aluminum Chip	
☐ Holding Tank	

The continuous pretreatment vessels include: Clarification eop.